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EPR studies of covalent bonding and hyperfine coupling in the complexes of ns 1 ions

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Abstract

Covalent bonding in the complexes containing ns 1 ions of various metals was studied by EPR spectroscopy. Large series of octahedral, cubic, and cuboctahedral complexes of the 67Zn+(4s 1), 111Cd+(5s 1), 205Tl2+(6s 1), and 207Pb 3+(6s 1) ions were analyzed in crystal structures like fluoroperovskite (KMgF3), fluoroantiperovskite (LiBaF3), fluorite (MF2) (where M = Ca, Sr, and Ba), and alkali metal halides. The parameters of hyperfine couplings and ligand hyperfine couplings were interpreted with regard to bond covalence and spin polarization. © 2008 MAIK Nauka.

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